# Rocky Flats Environmental Technology Site

## TYPE 1
## RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

## BUILDINGS 372 AND 372A CLOSURE PROJECT

**REVISION 0**

**July 15, 2003**

CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02



1/48

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# BUILDINGS 372 AND 372A CLOSURE PROJECT

**REVISION 0**

**July 15, 2003**

**Reviewed by:** _____ Date: 7/15/03
Don Risoli, Quality Assurance

**Reviewed by:** _____ Date: 7/15/03
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**Approved by:** _____ Date: 07/15/03
Cameron Freiboth, K-H D&D Project Manager

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## ATTACHMENTS

## ABBREVIATIONS/ACRONYMS

| | |
|---|---|
| ACM | Asbestos containing material |
| Be | Beryllium |
| CDPHE | Colorado Department of Public Health and the Environment |
| CERCLA | Comprehensive Emergency Response, Compensation and Liability Act |
| $DCGL_{EMC}$ | Derived Concentration Guideline Level – elevated measurement comparison |
| $DCGL_W$ | Derived Concentration Guideline Level – Wilcoxon Rank Sum Test |
| D&D | Decontamination and Decommissioning |
| DDCP | Decontamination and Decommissioning Characterization Protocol |
| DOE | U.S. Department of Energy |
| DPP | Decommissioning Program Plan |
| DQA | Data quality assessment |
| DQOs | Data quality objectives |
| EPA | U.S. Environmental Protection Agency |
| FDPM | Facility Disposition Program Manual |
| HVAC | Heating, ventilation, air conditioning |
| HSAR | Historical Site Assessment Report |
| IHSS | Individual Hazardous Substance Site |
| IWCP | Integrated Work Control Package |
| K-H | Kaiser-Hill |
| LBP | Lead-based paint |
| LLW | Low-level waste |
| MARSSIM | Multi-Agency Radiation Survey and Site Investigation Manual |
| MDA | Minimum detectable activity |
| MDC | Minimum detectable concentration |
| NORM | Naturally occurring radioactive material |
| NRA | Non-Rad-Added Verification |
| OSHA | Occupational Safety and Health Administration |
| PARCC | Precision, accuracy, representativeness, comparability and completeness |
| PCBs | Polychlorinated Biphenyls |
| PDS | Pre-demolition survey |
| QC | Quality Control |
| RCRA | Resource Conservation and Recovery Act |
| RFCA | Rocky Flats Cleanup Agreement |
| RFETS | Rocky Flats Environmental Technology Site |
| RFFO | Rocky Flats Field Office |
| RLC | Reconnaissance Level Characterization |
| RLCR | Reconnaissance Level Characterization Report |
| RSP | Radiological Safety Practices |
| SVOCs | Semi-volatile organic compounds |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TSA | Total surface activity |
| VOCs | Volatile organic compounds |

## EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the DPP (10/8/98) and compliant disposition and waste management of Buildings 372 and 372A. Because these facilities were anticipated Type 1 facilities, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). All facility surfaces were characterized in this RLC, including the interior and exterior surfaces [i.e., floors (slabs), walls, ceilings and roofs]. Environmental media beneath and surrounding the facilities were not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

Results indicate that no radiological contamination exists in excess of the PDSP unrestricted release limits of DOE Order 5400.5. All bulk sample results of building materials suspected of containing asbestos were negative or "None Detected". All beryllium sample results were less than 0.1 $\mu g/100cm^2$. Fluorescent light ballasts may contain PCBs. Any PCB ballasts and hazardous-waste items will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal,* as applicable. All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete.

Although it is outside of the scope of this RLCR, it should be noted that a diesel-powered emergency generator is located directly north of Building 372A. Demolition activities should be planned to limit impacts to the generator and its associated fuel tank.

Based upon this RLCR, Buildings 372 and 372A are considered Type 1 facilities. To ensure the facilities remain free of contamination and RLC data remain valid, Level 2 Isolation Controls have been established and the facilities posted accordingly.

# 1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of Buildings 372 and 372A. Because these facilities were anticipated Type 1 facilities, a PDS characterization was performed. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facilities [i.e., floors (slabs), walls, ceilings and roofs]. Environmental media beneath and surrounding the facilities were not within the scope of this RLC Report (RLCR) and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these are Buildings 372 and 372A. The location of these facilities is shown in Attachment A, *Facility Location Map*. These facilities will soon no longer support the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before the facilities can be removed, a Pre-Demolition Survey (PDS) must be conducted; this document presents the PDS results. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

## 1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. A RLC is performed before Type 1 building demolition to define the pre-demolition radiological and chemical conditions of a facility. Pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. RLC results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

## 1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of Buildings 372 and 372A. Environmental media beneath and surrounding the facilities are not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

## 1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC were the same DQOs identified in the Pre-Demolition survey Plan for D&D Facilities (MAN-127-PDSP.) Refer to section 2.0 of MAN-127-PDSP for these DQOs.

## 2 HISTORICAL SITE ASSESSMENT

Facility-specific Historical Site Assessments (HSAs) were conducted to understand facility histories and related hazards. The assessments consisted of facility walk-downs, interviews and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. Results of the facility-specific HSAs were documented in a facility-specific *Historical Site Assessment Report (HSAR) for the Area 3 – Group 4 Facilities*, Dated May 2002, Revision 0 (refer to Attachment B, *Historical Site Assessment Report*). In summary, the HSAR identified no potential for radiological and chemical hazards, except the potential for asbestos containing materials.

## 3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Buildings 372 and 372A were characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files).

Two radiological survey packages were developed for the interior surfaces of the Buildings 372 and 372A Facilities: 372-A-005 (Building 372) and 372A-A-006 (Building 372A). The survey packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit packages are maintained in the RISS Characterization Project files.

Forty nine (49) TSA measurements (30 random, 15 biased and 4 QC), forty five (45) RSA measurements (30 random and 15 biased), and a minimum of 5% of the interior surfaces of Buildings 372 and 372A were scanned at biased locations. The RLC data confirmed that these facilities do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit packages are maintained in the RISS Characterization Project files. Level 2 Isolation Control postings are displayed on the buildings to ensure no radioactive materials are inadvertently introduced.

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The exterior radiological surveys for Buildings 372 and 372A were performed as part of the RISS West Side Exterior PDS strategy effort (authorized by Department of Energy letter, *02-DOE-01598*, dated December 13th, 2002 and approved by CDPHE letter, *RE: Proposed Deviations From The Pre-Demolition Survey Plan (PDSP)*, dated January 27, 2003; refer to the RISS Characterization Project Files for letter copies). The RISS West Side exterior building radiological surveys and locations can be found in survey unit package EXT-B-001, *RISS West Side Building Exteriors*. Four (4) biased TSA measurements, four (4) biased RSA measurements, and a one (1) square meter scan at each of the four (4) TSA/RSA locations were performed at biased locations on the exterior surfaces of Buildings 372 and 372A. Ten percent scan surveys were performed at biased locations on the exterior entrance and associated concrete surfaces of the Buildings 372 and 372A, and one (1) additional TSA and RSA measurement was also collected. The RLC data collected in exterior survey unit package EXT-B-001 confirmed that the exterior surfaces of these facilities do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey map locations for the West-Side Exterior survey unit package EXT-B-001 are maintained in the RISS Characterization Project files.

## 4 CHEMICAL CHARACTERIZATION AND HAZARDS

Buildings 372 and 372A were characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on, or in the facilities. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan (refer to RISS Characterization Project files) was developed during the planning phase that describes sampling requirements, the justification for the sample locations and estimated number of samples. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, and PCBs.

### 4.1 Asbestos

A visual survey of building materials suspected of containing asbestos was conducted in Buildings 372 and 372A in accordance with the PDSP. A CDPHE-certified asbestos inspector conducted the inspection and sampling in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1*. Building materials suspected of containing asbestos were identified for sampling at the discretion of the inspector.

All laboratory results of bulk samples taken of building materials suspected of containing asbestos in Buildings 372 and 372A were "None Detected". Refer to Attachment D, *Chemical Data Summaries and Sample Maps*, for details on sample results and sample locations.

## 4.2 Beryllium (Be)

Based on the HSAR and personnel interviews, Buildings 372 and 372A were anticipated Type 1 facilities. There was not, however, adequate historical and process knowledge to conclude that beryllium was not used or stored in these buildings. Therefore, biased beryllium sampling was performed in accordance with the PDSP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999.* Biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

All beryllium smear sample results were less than 0.1 $\mu g/100cm^2$. Beryllium laboratory sample data and location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

## 4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on the HSAR, interviews and facility walk-downs of Buildings 372 and 372A, there was no record of operations using materials that could lead to RCRA/CERCLA concerns. These buildings do not have a history of spills or releases of RCRA/CERCLA regulated materials, and there were no observations to suggest contamination. Therefore, RCRA/CERCLA constituent sampling was not performed in these facilities as part of this RLC effort.

Sampling for lead in paint in Buildings 372 and 372A was not performed. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

The buildings may contain some RCRA regulated items, such as mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, leaded glass and lead-acid batteries. These items will be removed prior to demolition and managed in accordance with the Colorado Hazardous Waste Act.

## 4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR, interviews and facility walkdowns of Buildings 372 and 372A, no PCB-containing equipment was ever present in any of the facilities, making the potential for PCB contamination resulting from spills highly unlikely. Therefore, PCB sampling was not performed in these facilities as part of this RLC effort.

Based on the age of Buildings 372 and 372A (constructed after 1980), paints used on the facility are not expected to contain PCBs, and painted surfaces can be disposed of as sanitary waste.

Some of the facilities may contain fluorescent light ballasts containing PCBs. Fluorescent light fixtures will be inspected to identify PCB ballasts during removal operations. PCB ballasts will be identified based on factors such as labeling (e.g., PCB-containing and non PCB-containing), manufacturer, and date of manufacturing. All ballasts that do not indicate non PCB-containing are assumed to be PCB-containing and, if not leaking or more than 9 pounds, will remain with the building and be disposed of as PCB Bulk Product Waste.

## 5 PHYSICAL HAZARDS

Physical hazards associated with Buildings 372 and 372A consist of those common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. Although it is outside of the scope of this RLCR, it should be noted that a diesel-powered emergency generator is located directly north of Building 372A. Demolition activities should be planned to limit impacts to the generator and its associated fuel tank. Care should be taken during demolition activities as Building 372A is located near PAC 300-156.1 "Building 371 Parking Lot (NFA approved in 2001). There are no other unique hazards associated with the facilities. These facilities have been relatively well maintained and are in good physical condition, and therefore, do not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

## 6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Buildings 372 and 372A, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and,
- the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment E.

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## 7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Buildings 372 and 372A will generate a variety of wastes. Estimated waste types and waste volumes are presented below by facility. There is no radioactive or beryllium waste. All waste can be disposed of as sanitary waste, except PCB Bulk Product Waste. Any PCB ballast and hazardous-waste items (e.g., mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, leaded glass and lead-acid batteries) will be removed and managed pursuant to Site PCB and waste management procedures. All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete.

**Waste Volume Estimates and Material Types - Buildings 372 and 372A**

| Facility | Concrete (cu ft) | Wood (cu ft) | Metal (cu ft) | Corrugated Sheet Metal (cu ft) | Wall Board (cu ft) | ACM (cu ft) | Other Waste (cu ft) |
|---|---|---|---|---|---|---|---|
| **372** | 1,400 | 0 | 700 | 0 | 200 | 0 | None |
| **372A** | 3,200 | 1,000 | 0 | 0 | 500 | 0 | None |

## 8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Buildings 372 and 372A are classified as RFCA Type 1 facilities pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and can be demolished or sold to offsite commerce. The Type 1 classification is based on a review of historical and process knowledge, and newly acquired RLC data.

The RLC of Buildings 372 and 372A was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. These facilities do not contain radiological or beryllium wastes. Any PCB ballasts or hazardous-waste items will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal,* as applicable.

All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete. Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

To ensure these Type 1 facilities remain free of contamination and RLC data remain valid, Level 2 Isolation Controls have been established and the facilities posted accordingly.

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## 9 REFERENCES

DOE/RFFO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA),* July 19, 1996.

DOE Order 5400.5, *"Radiation Protection of the Public and the Environment."*

EPA, 1994. *"The Data Quality Objective Process,"* EPA QA/G-4.

K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 3, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual*, December 1997 (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure,* Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure,* Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

RFETS, *Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.*

RFETS, *Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.*

*RFCA Standard Operation Protocol for Recycling Concrete*, September 28, 1999.

*Historical Site Assessment Report for the Area 3 – Group 4 Facilities*, Dated May 2002, Revision 0.

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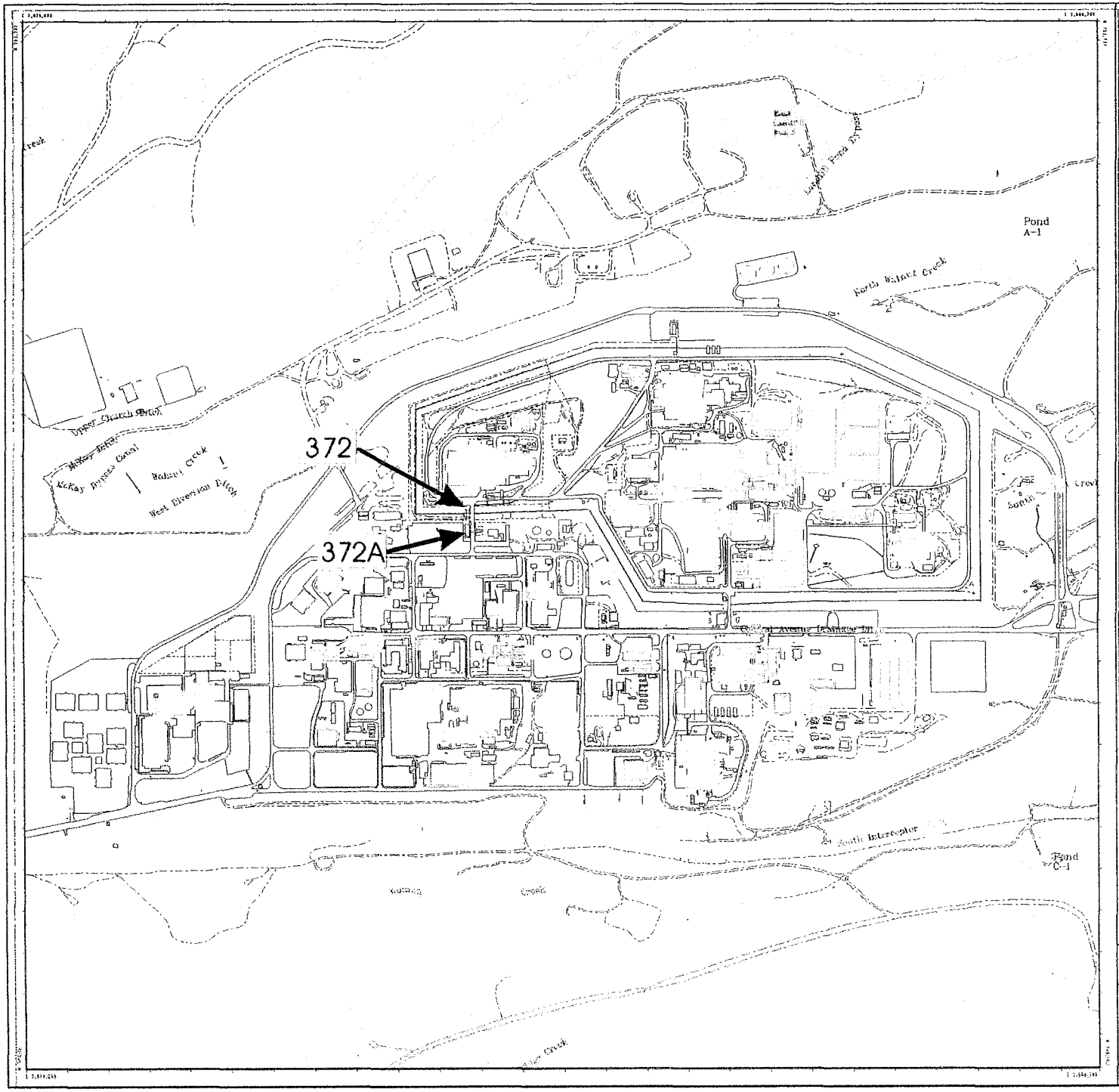
# ATTACHMENT A

# Facility Location Map




# Building Cluster 372 & 372A

## Standard Map Features

- Buildings and other structures
- Demolished buildings and other structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences and other barriers
- Paved roads
- Dirt roads

DATA SOURCE BASE FEATURES:
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas.
Digitized from the orthophotographs. 1/95

Scale = 1 : 12450
1 inch represents approximately 1038 feet

250 0 500 1000ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

**U.S. Department of Energy**
**Rocky Flats Environmental Technology Site**

GIS Dept. 303-966-7707

Prepared by:

Prepared for:

MAP ID: FY 2002

July 10, 2003

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# ATTACHMENT B

# Historical Site Assessment Report

# D&D RISS Facility Characterization
# Historical Site Assessment Report
# May, 2002 Rev. 0

**Facility ID: (AREA 3 - GROUP 4) Buildings 302, 303, T303D, 308, 372, 372A, and 375.** _
Anticipated Facility Type (1, 2, or 3): 302, 303, T303D, 308, 372, 372A, and 375 are anticipated Type 1 facilities.

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with:
*D&D Characterization Protocol*, RFETS MAN-077-DDCP, latest version, and
*Facility Disposition Program Manual*, RFETS MAN-076-FDPM, latest version

**Physical Description**

**Building 302**

Building 302 is an 1872 sq. ft. Shoot House constructed in 1997 and is used by security for indoor firearms training. The structure was built with steel exterior walls and wood interior walls which divide the building into rooms. Building 302 has an open roof with an observation platform mount on the top of the structure. The platform is used by instructors to observe the students during training. The building is constructed on a concrete slab poured on grade.

Building 302 has the following utilities: fire protection provided by wall mounted fire extinguishers.

**Building 303**

Building 303 is an approximately 6,500 sq. ft. rife range constructed in 1983. The rifle range consisting of a 35 sq. ft. monitoring booth located on the south end of the range and the 6,500 sq. ft. covered rifle range. The monitoring booth has observation windows on the east, west, and north side of the structure. The monitoring station is constructed on an elevated concrete pad poured on grade. The rifle range is a 6,500 sq. ft covered structure with open sides and an asphalt pad. The covered range is constructed with steel I-beams and plywood covering the beam to prevent stray bullets from deflecting off the beams. The cover is also ballistic resistant which means there are steel plates in the roof to prevent bullets from penetrating. The range cover and asphalt pad were added to the range in approximately 1995. The current bullet containment system (equipped with a dust collection vacuum) located on the north end of the range was added in approximately 1998.

Building 303 has the following utilities: electric and fire protection provided by wall mounted fire extinguishers.

**Building T303D**

Building T303D is a 1960 sq. ft. trailer used to conduct classroom training for site security. The trailer was acquired in 1991 and was originally called T120A. This trailer was located at the west entrance to the RFETS site and was used as the badging trailer. Trailer T120A was moved to its current location and renamed T303D in 1999. The T303D walls and roof are constructed of sheet metal and the entry doors have wood stairs.

Building T303D has the following utilities: electric and fire protection is provided by wall mounted fire extinguishers.



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**Building 308**

Building 308 is a 100 sq. ft. building constructed in 1983. This building is a metal structure with insulated metal walls, insulated metal roof, and is constructed on a concrete pad. The building houses an air compressor used to turn the firing range targets.

Building 308 has the following utilities: electric and fire protection is provided by wall mounted fire extinguishers.

**Building 372**

Building 372 is a single story 520 sq. ft. Guard House constructed in 1983. Building 372 is a reinforced concrete structure with a concrete panel roof and is built on a concrete slab. In the mid 1980s this building was "Hardened". Hardening a structure means to add bulletproof glass and install heavy steel doors. This building housed a variety of site alarm systems and an observation window to view personnel and equipment entering through PACS 2.

Building 372 has the following utilities: electric, plant water, plant sanitary, and fire protection is provided by wall mounted fire extinguishers.

**Building 372A**

Building 372A is single story 1800 sq. ft. Personnel Access Control Facility for Building 371 (PACS 2) and was constructed in 1989. Building 372A is a reinforced concrete structure with a concrete roof and is built on a concrete slab. The building contains personnel scanners, entry turnstiles, and a large metal security room used to house security personnel and a variety of site alarm systems. Directly north of the building there is a back-up diesel generator.

Building 372A has the following utilities: electric, and fire protection is provided by wall mounted fire extinguishers.

**Building 375**

Building 375 is 338 sq. ft. Guard Tower (T-4) constructed in 1983. Building 375 is a 85 foot tall tower constructed of masonry blocks. This building has metal stairs that lead to an observation platform used by site security to observe the area around the Building 371 complex. The observation room has bulletproof glass to protect the occupants. The roof had an access port and guardrail installed in 1993 so security forces had access to the roof to aid in defending the area.

Building 375 has the following utilities: electric, and fire protection is provided by wall mounted fire extinguishers



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**Historical Operations**

**Building 302**

Building 302 is the Shoot House used by site security to train personnel in an indoor shooting situation. The shooting house is divided into rooms and each room is staged in a different training scenario. The open top to the structure provides instructors an observation point to evaluate students. Only non-lead containing bullets are used in this facility.

**Building 303**

Building 303 is the rifle range and consists of a 35 sq. ft. monitoring booth and the 6,500 sq. ft. covered rifle range. The original rifle range consisted of the monitoring station, a gravel pad, and a dirt berm located on the north, west and east side of the range. The dirt berm located on the north side of the range was used to stop the bullets during practice. In 1995 the gavel pad was paved with asphalt and an open sided cover was constructed over the rifle range. In 1998 the current bullet containment system was installed and the bullets were no longer stopped by the dirt berm located at the north end of the rifle range. During the construction of the bullet containment system, several feet of the south side of the north berm was excavated and moved to the north side of the berm and on the ends of the berm. The cover to the shooting range is constructed of steel beams covered with plywood designed to stop stray bullets from deflecting off the steel beams. Historically the bullets were shot into the dirt berm at the end of the rifle range, since the installation of the bullet containment system the bullets are collected and sent off site for recycle.

**Building T303D**

Building T303D is an office trailer used to conduct classroom training for site security. The trailer was originally called T120A and was located at the west entrance to RFETS. This trailer was used as a badging trailer. There is no history of radiological or hazardous material operation in this trailer.

**Building 308**

Building 308 is the Rifle Range Compressor Building and houses an air compressed, which supplies compressed air used to turn the firing range targets during training exercises. This building has always been the compressor building.

**Building 372**

Building 372 is the building 371 guardhouse. This guardhouse is used by the site security forces to house security personnel as well as providing an observation point to view personnel and equipment entering PACS 2. During the mid 1980s this building housed a sealed cesium source for several years. There is not history of this source leaking and the facility is no longer used to store sealed sources.



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**Building 372A**

Building 372A is the Personnel Access Control Facility for (PACS 2) and is operated by site security. This building contains personnel scanners, entry turnstiles, a large metal security room used to house security personnel and a variety of site alarm systems. On occasion, this facility had small quantities of sealed and packaged radiological material (usually sealed sources), transported though the personnel access area. There is no history of any building contamination resulting from this activity.

**Building 375**

Building 375 is a guard tower that has been inactive since 1999. The tower was used as an observation point for the area around the 371 complex. This facility housed a variety of site alarms and electronic monitoring equipment. This facility never housed radiological or chemical operations.

**Current Operational Status**

Building 302, 303, T303D, and 308 make up the firing Range and are all operational. Building 375 is the guard tower and has not been operational since 1999. Building 372 and 372A are the Building 371 PACs and the Building 371 Guard Post and are operational.

**Contaminants of Concern**

**Asbestos**

*Describe any potential, likely, or known sources of Asbestos*:

None of the buildings addressed in this HSA have an asbestos posting. None of the facilities in this HSA have had a comprehensive asbestos survey.

**Beryllium (Be)**

*Describe any potential, likely, or known Be production or storage locations:*

None of the building addressed in this HSA are on the List of known Be Areas.

*Summarize any recent Be sampling results:*

No resent Beryllium samples have been collected on any of these facilities.

**Lead**

*Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):*

Lead in paint should not be a concern for the facilities in this HSA, given the resent age of construction. Lead from spent bullets is a waste stream generated on the Building 303 Rifle Range. Historically the lead bullets where stopped by the dirt berm located on the north side of the shooting range. Currently the bullets are stopped and collected by the bullet containment system and sent off site for recycle. The area around the bullet containment system has residue bullet fragments. Only non-lead containing bullets are used in the Building 302 Shoot House.



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**RCRA/CERCLA Constituents**

*Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, and processes):*

The Building 303 firing range has a bullet containment system (equipped with a dust collection vacuum), that was installed in 1999 to collect bullet fragment generated during practice. The bullet containment system and the area around it have residue from the fragmented lead bullets. Prior to the installation of the bullet containment system the bullets were stopped by a dirt berm located at the north end of the firing range. During the installation of the bullet containment system the southern portion of the dirt berm was removed and placed on the north side of the dirt berm. Firearms were clean at Building 121 and not cleaned at the firing range.

The remainder of the facilities addressed in this HSA have no history of handling RCRA/CERCLA constituents.

*Describe any potential, likely, or known spill locations (and sources, if any):*

Additional RCRA/CERCLA release information is documented in the IHSS, PAC, and UBC section below.

*Describe methods in which spills were mitigated, if any:*

None

**PCBs**

*Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):*

PCBs where not known to have been handled in any of these facilities.

*Describe any potential, likely, or known spill locations (and sources, if any):*

No PCB spills occurred in any of the facilities addressed in this HSA.

*Describe methods in which spills were mitigated, if any:*

No PCB spills occurred in any of the facilities addressed in this HSA.



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**Radiological Contaminants**

*Describe any potential, likely, or known radiological production or storage locations:*

None of the Facilities addressed in this HSA are radiologically posted. None of the facilities have housed any radiological operations. The Building 375 Guard Tower stored a cesium source for 2 to 3 years during the mid 1980s. The firing range never used armor piercing rounds (depleted uranium). Building 372A has had a limited amount of sealed and containerized radiological material (mostly sealed sources) transported through the building. This material was always transported in appropriate sealed containers and there is no history of any leaks associated with this activity.

*Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):*

None

*Describe methods in which spills were mitigated, f any:*

None

*Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):*

Other than sealed sources, there were no known mixed fission products or pure beta emitters used in any of the facilities addressed in this HSA.

*Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):*

See section below for information on IHSSs PACs, and UBCs.

**Environmental Restoration Concerns**

*Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):*

Building 302, 303, T303D, and 308 are associated with or located near the following active IHSSs, PACs, and UBCs;

1) PAC NW-1505 "North firing Range", Active.

Building 372A is associated with or located near the following active IHSSs, PACs, and UBCs;

1) PAC 300-156.1 "Building 371 Parking lot", NFA approved in 2001.

Buildings 372 and 375 are not associated with any IHSSs, PACs, and UBCs.

**Additional Information**

*Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):*

None



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# D&D RISS Facility Characterization
# Historical Site Assessment Report
# May, 2002 Rev. 0

**References**

*Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews):*

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. None of the buildings in this HSA have WSRICs. In addition, a facility walkdown and interviews were performed.

**Waste Volume Estimates and Material Types**

| Facility | Concrete (cu ft) | Wood (cu ft) | Metal (cu ft) | Corrugated Sheet Metal (cu ft) | Wall Board (cu ft) | ACM (cu ft) | Other Waste (cu ft) |
|---|---|---|---|---|---|---|---|
| **Building 302** | 1000 | 500 | 500 | 0 | 0 | TBD | N/A |
| **Building 303** | 800 | 700 | 3500 | 0 | 0 | TBD | Asphalt -2500 |
| **Trailer T303D** | 0 | 500 | 500 | 500 | 750 | TBD | N/A |
| **Building 308** | 60 | 0 | 100 | 0 | 0 | TBD | N/A |
| **Building 372** | 1400 | 0 | 700 | 0 | 200 | TBD | N/A |
| **Building 372A** | 3200 | 1000 | 0 | 0 | 500 | TBD | N/A |
| **Building 375** | 1900 | 0 | 900 | 0 | 100 | TBD | N/A |

**Further Actions**

*Recommend any further actions, if any (e.g., characterization, decontamination, special handling, etc.):*

Begin the RLC/PDS process.

**Note:**

This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. SMEs should evaluate and/or verify all information during the RLC/PDS process. SMEs may need to review additional documentation and perform additional interviews. Information contained in this HSA only represents a "snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report. However, this report will not be amended, and the newer data will take precedence over the data in this report. Newer Data will appear in the RLCR/PDSR.

**Prepared By:** Doug Bryant / /s/ / May 2002

Name Signature Date



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# ATTACHMENT C

# Radiological Data Summaries and Survey Maps

# SURVEY UNIT 372-A-005
# RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B372 (Interior)



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## Total Surface Activity Measurements

| | 20 Number Required | 20 Number Obtained | |
|---|---|---|---|
| MIN | -6.0 | | dpm/100 cm$^2$ |
| MAX | 32.1 | | dpm/100 cm$^2$ |
| MEAN | 4.0 | | dpm/100 cm$^2$ |
| STD DEV | 8.9 | | dpm/100 cm$^2$ |
| TRANSURANIC DCGL$_W$ | 100 | | dpm/100 cm$^2$ |

## Removable Activity Measurements

| | 20 Number Required | 20 Number Obtained | |
|---|---|---|---|
| MIN | -0.6 | | dpm/100 cm$^2$ |
| MAX | 3.9 | | dpm/100 cm$^2$ |
| MEAN | 0.8 | | dpm/100 cm$^2$ |
| STD DEV | 1.4 | | dpm/100 cm$^2$ |
| TRANSURANIC DCGL$_W$ | 20 | | dpm/100 cm$^2$ |



25

# SURVEY UNIT 372-A-005
# TSA - DATA SUMMARY

| Manufacturer: | NE Tech | NE Tech |
|---|---|---|
| Model: | DP-6 | DP-6 |
| Instrument ID#: | 1 | 2 |
| Serial #: | 1417 | 1256 |
| Cal Due Date: | 7/28/03 | 12/18/03 |
| Analysis Date: | 7/9/03 | 7/9/03 |
| Alpha Eff. (c/d): | 0.210 | 0.230 |
| Alpha Bkgd (cpm) | 0.0 | 1.0 |
| Sample Time (min) | 1.5 | 1.5 |
| LAB Time (min) | 1.5 | 1.5 |
| MDC (dpm/100cm$^2$) | 48.0 | 48.0 |

| Sample Location Number | Instrument ID#: | Sample Gross Counts (cpm) | Sample Gross Activity (dpm/100cm2) | LAB Gross Counts (cpm) | LAB Gross Activity (dpm/100cm2) | Sample Net Activity (dpm/100cm2)[1,2] |
|---|---|---|---|---|---|---|
| 1 | 1 | 4.0 | 19.0 | 1.0 | 4.8 | 8.3 |
| 2 | 1 | 3.0 | 14.3 | 2.0 | 9.5 | 3.6 |
| 3 | 1 | 4.0 | 19.0 | 3.0 | 14.3 | 8.3 |
| 4 | 1 | 4.0 | 19.0 | 2.0 | 9.5 | 8.3 |
| 5 | 1 | 6.0 | 28.6 | 4.0 | 19.0 | 17.9 |
| 6 | 1 | 1.0 | 4.8 | 1.0 | 4.8 | -6.0 |
| 7 | 1 | 3.0 | 14.3 | 2.0 | 9.5 | 3.6 |
| 8 | 1 | 9.0 | 42.9 | 1.0 | 4.8 | 32.1 |
| 9 | 1 | 2.0 | 9.5 | 0.0 | 0.0 | -1.2 |
| 10 | 1 | 4.0 | 19.0 | 5.0 | 23.8 | 8.3 |
| 11 | 1 | 2.0 | 9.5 | 1.0 | 4.8 | -1.2 |
| 12 | 1 | 3.0 | 14.3 | 5.0 | 23.8 | 3.6 |
| 13 | 1 | 2.0 | 9.5 | 3.0 | 14.3 | -1.2 |
| 14 | 1 | 1.0 | 4.8 | 3.0 | 14.3 | -6.0 |
| 15 | 1 | 1.0 | 4.8 | 1.0 | 4.8 | -6.0 |
| 16 | 1 | 3.0 | 14.3 | 0.0 | 0.0 | 3.6 |
| 17 | 1 | 2.0 | 9.5 | 4.0 | 19.0 | -1.2 |
| 18 | 1 | 2.0 | 9.5 | 2.0 | 9.5 | -1.2 |
| 19 | 1 | 3.0 | 14.3 | 1.0 | 4.8 | 3.6 |
| 20 | 1 | 3.0 | 14.3 | 4.0 | 19.0 | 3.6 |

1 - Average LAB used to subtract from Gross Sample Activity

| | |
|---|---|
| 10.7 | Sample LAB Average |
| MIN | -6.0 |
| MAX | 32.1 |
| MEAN | 4.0 |
| SD | 8.9 |
| Transuranic $DCGL_w$ | 100 |

**QC Measurements**

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 QC | 2 | 3.5 | 15.2 | 2.0 | 8.7 | 8.7 |
| 19 QC | 2 | 2.0 | 8.7 | 1.0 | 4.3 | 2.2 |

1 - Average QC LAB used to subtract from Gross Sample Activity

| | |
|---|---|
| 6.5 | QC LAB Average |
| Transuranic $DCGL_w$ | 100 |



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# SURVEY UNIT 372-A-005
# RSC - DATA SUMMARY

| Manufacturer: | Eberline | Eberline | Eberline | Eberline |
|---|---|---|---|---|
| Model: | SAC-4 | SAC-4 | SAC-4 | SAC-4 |
| Instrument ID#: | 3 | 4 | 5 | 6 |
| Serial #: | 770 | 830 | 971 | **924** |
| Cal Due Date: | 10/17/03 | 10/22/03 | 8/6/03 | **10/23/03** |
| Analysis Date: | 7/9/03 | 7/9/03 | 7/9/03 | **7/9/03** |
| Alpha Eff. (c/d): | 0.33 | 0.33 | 0.33 | **0.33** |
| Alpha Bkgd (cpm) | 0.2 | 0.4 | 0.2 | **0.2** |
| Sample Time (min) | 2 | 2 | 2 | **2** |
| Bkgd Time (min) | 10 | 10 | 10 | **10** |
| MDC (dpm/100cm$^2$) | 7.0 | 8.0 | 4.5 | **4.5** |

| Sample Location Number | Instrument ID# | Gross Counts (cpm) | Net Activity (dpm/100 cm$^2$) |
|---|---|---|---|
| 1 | 3 | 2 | 2.4 |
| 2 | 4 | 1 | 0.3 |
| 3 | 5 | 0 | -0.6 |
| 4 | 6 | 1 | 0.9 |
| 5 | 3 | 0 | -0.6 |
| 6 | 4 | 2 | 1.8 |
| 7 | 5 | 1 | 0.9 |
| 8 | 6 | 0 | -0.6 |
| 9 | 3 | 0 | -0.6 |
| 10 | 4 | 2 | 1.8 |
| 11 | 5 | 0 | -0.6 |
| 12 | 6 | 3 | 3.9 |
| 13 | 3 | 2 | 2.4 |
| 14 | 4 | 2 | 1.8 |
| 15 | 5 | 2 | 2.4 |
| 16 | 6 | 0 | -0.6 |
| 17 | 3 | 1 | 0.9 |
| 18 | 4 | 1 | 0.3 |
| 19 | 5 | 0 | -0.6 |
| 20 | 6 | 0 | -0.6 |
| | | **MIN** | -0.6 |
| | | **MAX** | 3.9 |
| | | **MEAN** | 0.8 |
| | | **SD** | 1.4 |
| | | **Transuranic DCGL$_W$** | **20** |



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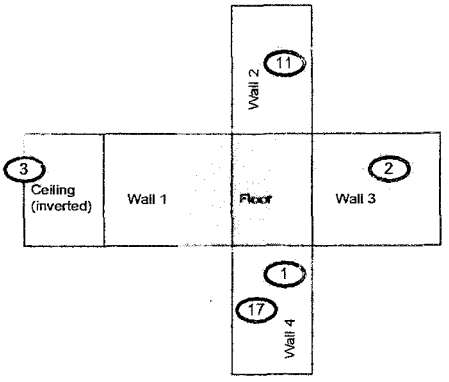
## PRE-DEMOLITION SURVEY FOR B372

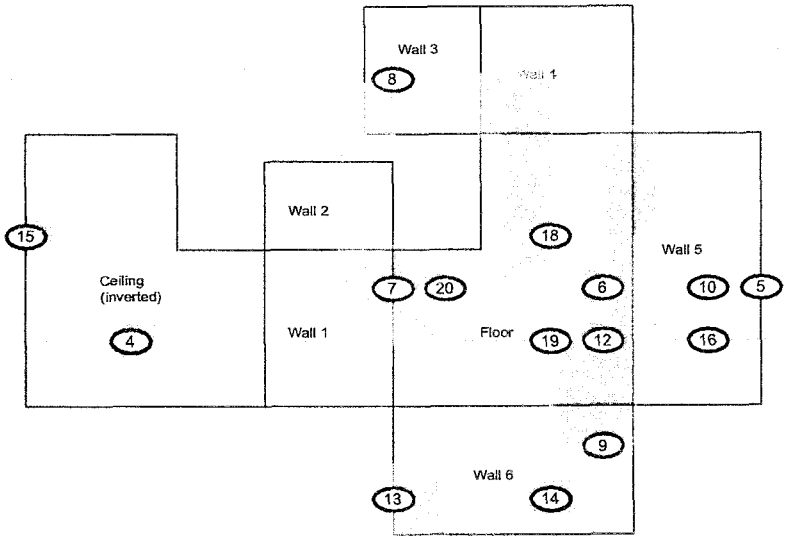
**Survey Area: 3** **Survey Unit: 372-A-005** **Classification: 3**
**Building: 372**
**Survey Unit Description: Building 372 Interior**
**Total Area: 110 sq. m.** **Total Floor Area: 24 sq. m.**



Rest Room




Main Room




Scan Area

**SURVEY MAP LEGEND**

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit



N

0 FEET 15
0 METERS 5

1 inch = 12 feet 1 grid sq. = 1 sq. m.

**Scan Survey Information**
**Survey Instrument ID #(s) & RCT ID #(s):**
**1, 2**

U.S. Department of Energy
Rocky Flats Environmental Technology Site

**Prepared by: GIS Dept. 303-966-7707** **Prepared for:**

CH2MHILL Communications Group

KAISER HILL

**MAP ID: 02-0589/B372-SC** **July 10, 2003**

# SURVEY UNIT 372A-A-006
# RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B372 (Interior)



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## Total Surface Activity Measurements

| | 25 Number Required | 25 Number Obtained | |
|---|---|---|---|
| MIN | -8.4 | | dpm/100 cm$^2$ |
| MAX | 22.1 | | dpm/100 cm$^2$ |
| MEAN | 4.9 | | dpm/100 cm$^2$ |
| STD DEV | 8.4 | | dpm/100 cm$^2$ |
| TRANSURANIC $DCGL_W$ | 100 | | dpm/100 cm$^2$ |

## Removable Activity Measurements

| | 25 Number Required | 25 Number Obtained | |
|---|---|---|---|
| MIN | -1.2 | | dpm/100 cm$^2$ |
| MAX | 1.8 | | dpm/100 cm$^2$ |
| MEAN | 0.0 | | dpm/100 cm$^2$ |
| STD DEV | 1.0 | | dpm/100 cm$^2$ |
| TRANSURANIC $DCGL_W$ | 20 | | dpm/100 cm$^2$ |



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# SURVEY UNIT 372A-A-006
# TSA - DATA SUMMARY

| Manufacturer: | NE Tech | NE Tech |
|---|---|---|
| Model: | DP-6 | DP-6 |
| Instrument ID#: | 1 | 2 |
| Serial #: | 1366 | 1136 |
| Cal Due Date: | 11/27/03 | 12/18/03 |
| Analysis Date: | 7/2/03 | 7/2/03 |
| Alpha Eff. (c/d): | 0.210 | 0.218 |
| Alpha Bkgd (cpm) | 2.7 | 4.7 |
| Sample Time (min) | 1.5 | 1.5 |
| LAB Time (min) | 1.5 | 1.5 |
| MDC (dpm/100cm$^2$) | 48.0 | 48.0 |

| Sample Location Number | Instrument ID#: | Sample Gross Counts (cpm) | Sample Gross Activity (dpm/100cm2) | LAB Gross Counts (cpm) | LAB Gross Activity (dpm/100cm2) | Sample Net Activity (dpm/100cm2)[1,2] |
|---|---|---|---|---|---|---|
| 1 | 1 | 4.7 | 22.4 | 4.7 | 22.4 | 7.8 |
| 2 | 1 | 3.3 | 15.7 | 3.3 | 15.7 | 1.2 |
| 3 | 2 | 6.0 | 27.5 | 2.7 | 12.4 | 13.0 |
| 4 | 1 | 7.3 | 34.8 | 4.0 | 19.0 | 20.2 |
| 5 | 1 | 1.3 | 6.2 | 2.7 | 12.9 | -8.4 |
| 6 | 1 | 3.3 | 15.7 | 3.3 | 15.7 | 1.2 |
| 7 | 2 | 2.7 | 12.4 | 5.3 | 24.3 | -2.2 |
| 8 | 1 | 2.7 | 12.9 | 3.3 | 15.7 | -1.7 |
| 9 | 1 | 4.0 | 19.0 | 1.3 | 6.2 | 4.5 |
| 10 | 1 | 2.0 | 9.5 | 2.7 | 12.9 | -5.0 |
| 11 | 2 | 4.7 | 21.6 | 2.7 | 12.4 | 7.0 |
| 12 | 2 | 5.3 | 24.3 | 1.3 | 6.0 | 9.8 |
| 13 | 1 | 2.7 | 12.9 | 0.0 | 0.0 | -1.7 |
| 14 | 2 | 8.0 | 36.7 | 4.0 | 18.3 | 22.1 |
| 15 | 1 | 2.0 | 9.5 | 3.3 | 15.7 | -5.0 |
| 16 | 1 | 2.7 | 12.9 | 4.0 | 19.0 | -1.7 |
| 17 | 2 | 6.0 | 27.5 | 2.0 | 9.2 | 13.0 |
| 18 | 2 | 6.0 | 27.5 | 3.3 | 15.1 | 13.0 |
| 19 | 2 | 7.3 | 33.5 | 4.0 | 18.3 | 18.9 |
| 20 | 2 | 4.7 | 21.6 | 4.7 | 21.6 | 7.0 |
| 21 | 1 | 4.7 | 22.4 | 2.0 | 9.5 | 7.8 |
| 22 | 2 | 4.7 | 21.6 | 3.3 | 15.1 | 7.0 |
| 23 | 2 | 2.7 | 12.4 | 2.0 | 9.2 | -2.2 |
| 24 | 2 | 2.7 | 12.4 | 4.7 | 21.6 | -2.2 |
| 25 | 1 | 2.7 | 12.9 | 3.3 | 15.7 | -1.7 |

1 - Average LAB used to subtract from Gross Sample Activity

| | |
|---|---|
| 14.6 | Sample LAB Average |
| MIN | -8.4 |
| MAX | 22.1 |
| MEAN | 4.9 |
| SD | 8.4 |
| Transuranic DCGL$_W$ | 100 |

QC Measurements

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 QC | 2 | 13.3 | 61.0 | 2.0 | 9.2 | 50.9 |
| 17 QC | 1 | 5.3 | 25.2 | 2.3 | 11.0 | 15.2 |

1 - Average QC LAB used to subtract from Gross Sample Activity

| | |
|---|---|
| 10.1 | QC LAB Average |
| Transuranic DCGL$_W$ | 100 |



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# SURVEY UNIT 372A-A-006
# RSC - DATA SUMMARY

| Manufacturer: | Eberline | Eberline | Eberline | Eberline |
|---|---|---|---|---|
| Model: | SAC-4 | SAC-4 | SAC-4 | SAC-4 |
| Instrument ID#: | 3 | 4 | 5 | 6 |
| Serial #: | 770 | 830 | 971 | **924** |
| Cal Due Date: | 10/17/03 | 10/22/03 | 8/6/03 | **10/23/03** |
| Analysis Date: | 7/9/03 | 7/9/03 | 7/9/03 | **7/9/03** |
| Alpha Eff. (c/d): | 0.33 | 0.33 | 0.33 | **0.33** |
| Alpha Bkgd (cpm) | 0.2 | 0.4 | 0.2 | **0.2** |
| Sample Time (min) | 2 | 2 | 2 | **2** |
| Bkgd Time (min) | 10 | 10 | 10 | **10** |
| MDC (dpm/100cm$^2$) | 7.0 | 8.0 | 4.5 | **4.5** |

| Sample Location Number | Instrument ID# | Gross Counts (cpm) | Net Activity (dpm/100 cm$^2$) |
|---|---|---|---|
| 1 | 3 | 0 | -0.6 |
| 2 | 4 | 0 | -1.2 |
| 3 | 5 | 0 | -0.6 |
| 4 | 6 | 0 | -0.6 |
| 5 | 3 | 1 | 0.9 |
| 6 | 4 | 0 | -1.2 |
| 7 | 5 | 1 | 0.9 |
| 8 | 6 | 1 | 0.9 |
| 9 | 3 | 0 | -0.6 |
| 10 | 4 | 2 | 1.8 |
| 11 | 5 | 1 | 0.9 |
| 12 | 6 | 0 | -0.6 |
| 13 | 3 | 1 | 0.9 |
| 14 | 4 | 2 | 1.8 |
| 15 | 5 | 1 | 0.9 |
| 16 | 6 | 0 | -0.6 |
| 17 | 3 | 0 | -0.6 |
| 18 | 4 | 1 | 0.3 |
| 19 | 5 | 0 | -0.6 |
| 20 | 6 | 1 | 0.9 |
| 21 | 3 | 0 | -0.6 |
| 22 | 4 | 0 | -1.2 |
| 23 | 5 | 0 | -0.6 |
| 24 | 6 | 0 | -0.6 |
| 25 | 3 | 1 | 0.9 |
| | | **MIN** | -1.2 |
| | | **MAX** | 1.8 |
| | | **MEAN** | 0.0 |
| | | **SD** | 1.0 |
| | | **Transuranic DCGL$_W$** | **20** |



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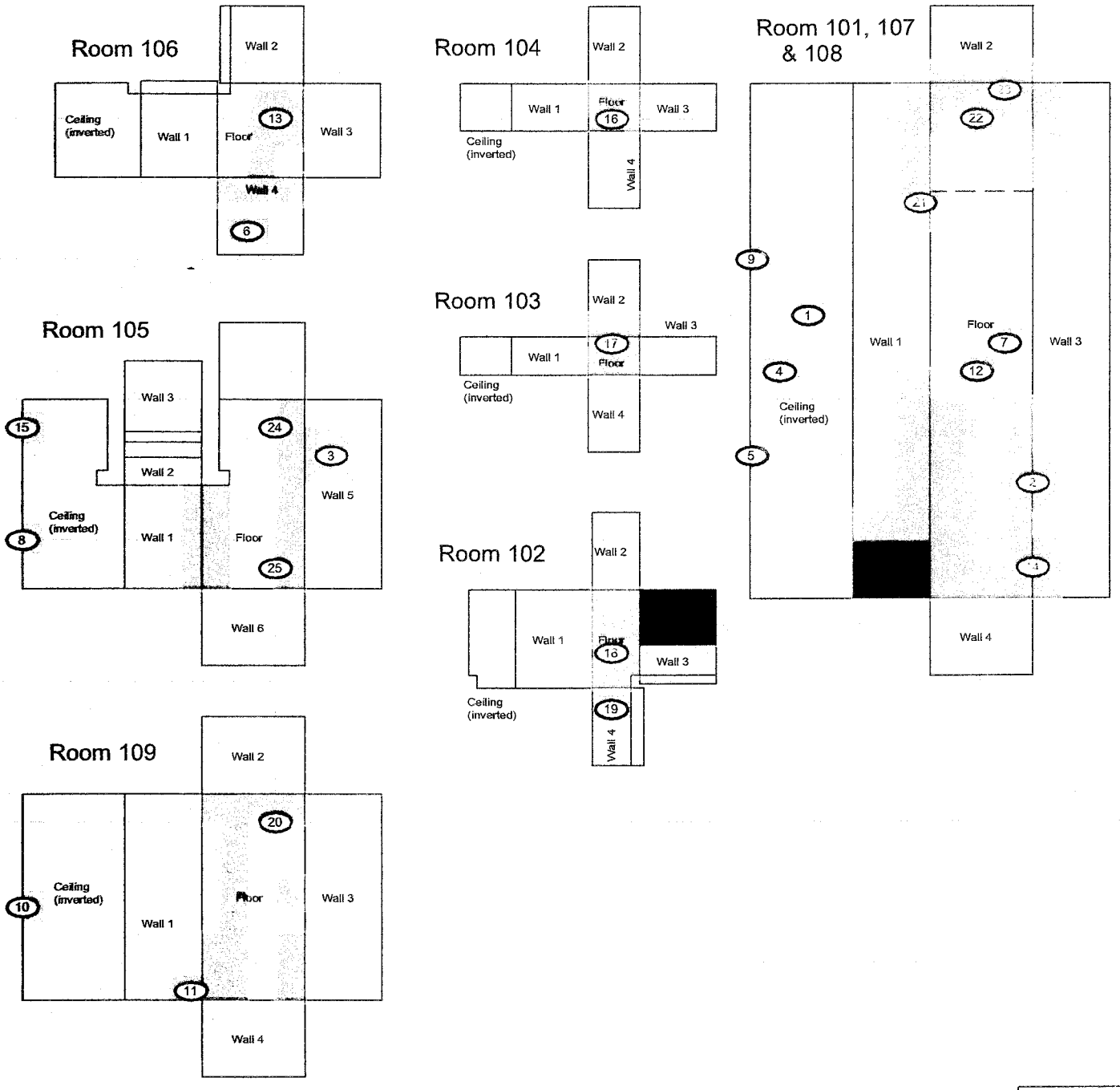
# PRE-DEMOLITION SURVEY FOR B372A

**Survey Area: 3** **Survey Unit: 372A-A-006** **Classification: 3**
**Building: 372A**
**Survey Unit Description: Building 372A Interior**
**Total Area: 604 sq. m.** **Total Floor Area: 138 sq. m.**






Scan Area

**SURVEY MAP LEGEND**

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit



N

0 FEET 25

0 METERS 8

1 inch = 18 feet 1 grid sq. = 1 sq. m.

**Scan Survey Information**
**Survey Instrument ID #(s) & RCT ID #(s):**
**1, 2,**

U.S. Department of Energy
Rocky Flats Environmental Technology Site

**Prepared by: GIS Dept. 303-966-7707** **Prepared for:**

CH2MHILL Communications Group

KAISER HILL

**MAP ID: 02-0589/B372A-SC** **July 10, 2003**

# ATTACHMENT D

# Chemical Data Summaries and Sample Maps

## Asbestos Data Summary

| Sample Number | Map Survey Location | Room | Material Sampled and Location | Analytical Results |
|---|---|---|---|---|
| **Building 372** | | | | |
| 372-06042003-315-201 | 1 | Main | 12" gray and white vinyl floor tile with adhesive | None Detected |
| 372-06042003-315-202 | 2 | Main | Drywall, west wall | None Detected |
| **Building 372A** | | | | |
| 372A-06042003-315-201 | 1 | 101 | 2' x 4' white acoustical drop ceiling tile | None Detected |

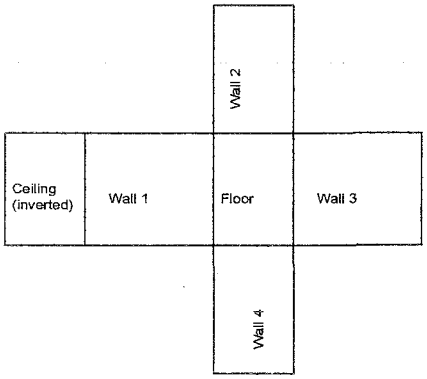
# CHEMICAL SAMPLE MAP

**Building 372 Interior**
**Asbsetos**

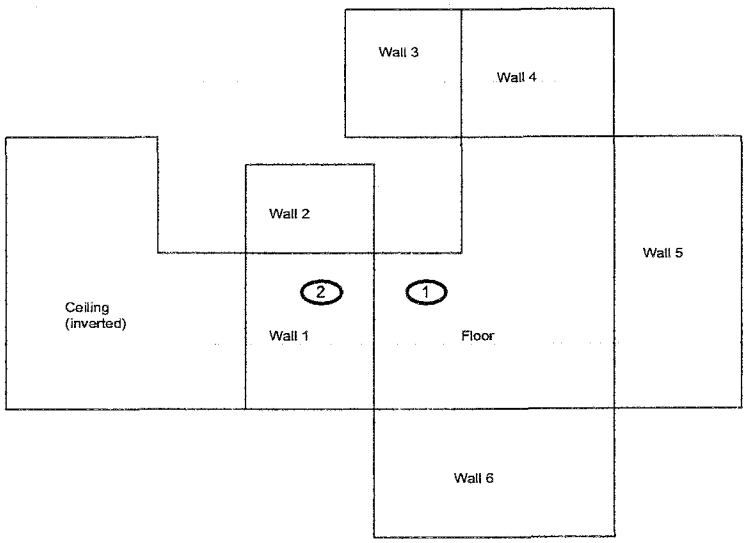


## Building 372 Interior

### Rest Room




### Main Room




**SURVEY MAP LEGEND**

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit



N

0 FEET 15

0 METERS 5

1 inch = 12 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

CH2MHILL Communications Group

Prepared for: KAISER HILL

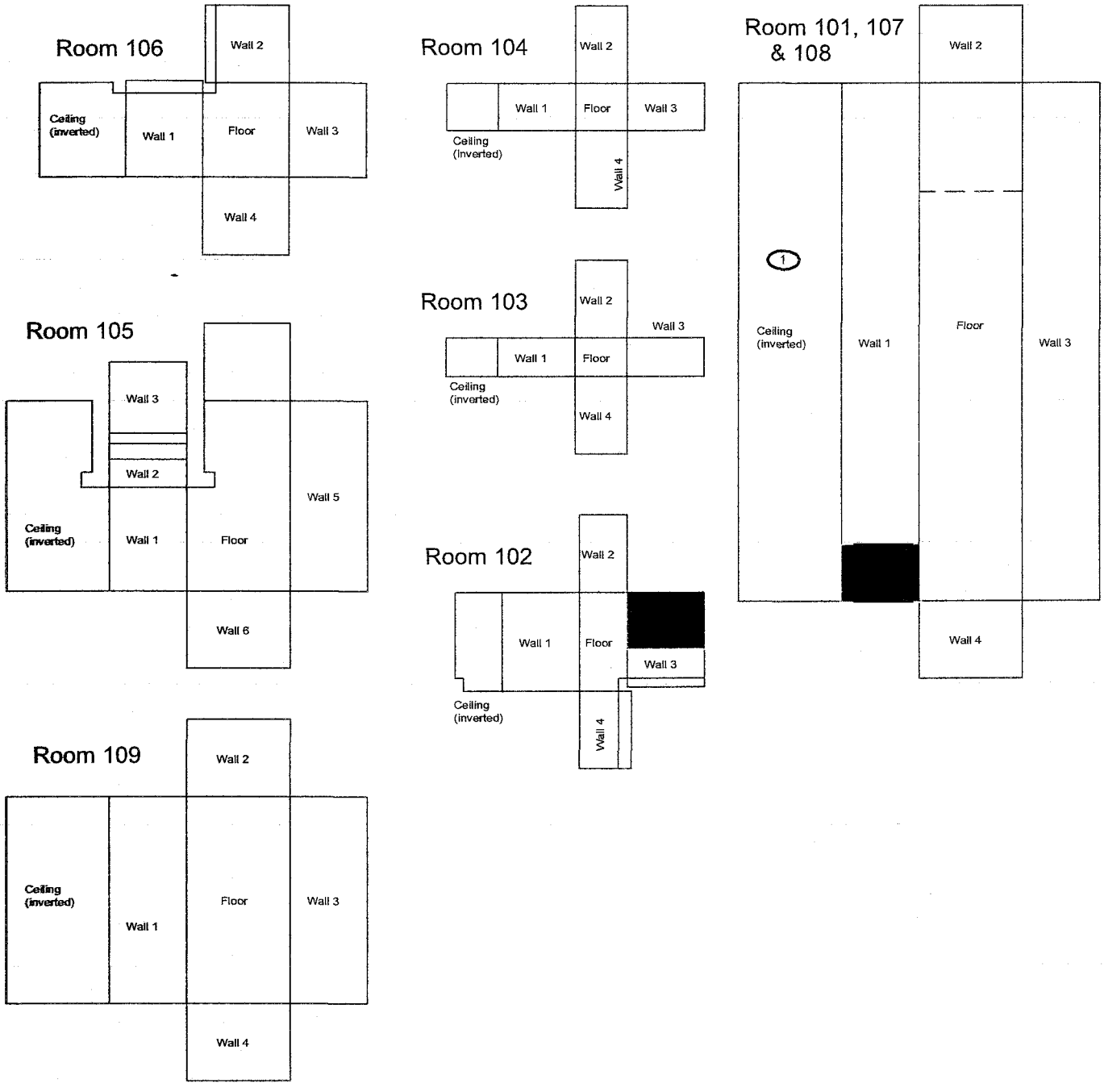
MAP ID: 02-0589/B372-ASB

June 03, 2003

# CHEMICAL SAMPLE MAP

## Building 372A Interior
## Asbestos






**SURVEY MAP LEGEND**

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit



N

0 FEET 25

0 METERS 8

1 inch = 18 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2MHILL Communications Group

KAISER HILL

MAP ID: 02-0589/B372A-ASB

June 03, 2003

# Beryllium Data Summary

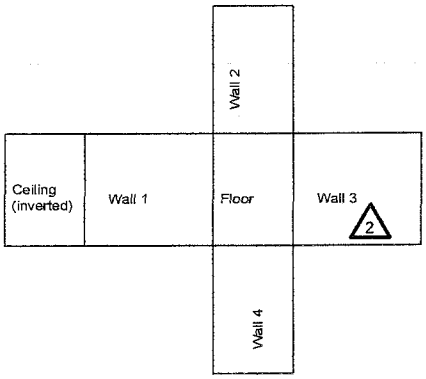
| Sample Number | Map Survey Point Location | Room | Sample Location | Result ($\mu g/100\ cm^2$) |
|---|---|---|---|---|
| **Building 372** | | | | |
| 372-06042003-315-101 | 1 | Main | On window ledge, south wall | < 0.1 |
| 372-06042003-315-102 | 2 | Bathroom | On copper pipe above commode | < 0.1 |
| 372-06042003-315-103 | 3 | Main | On 12" vinyl floor tile at east wall | < 0.1 |
| 372-06042003-315-104 | 4 | Main | Top of "Disaster Warning Junction Box" | < 0.1 |
| 372-06042003-315-105 | 5 | Main | Top of electrical conduit angle to electrical panel | < 0.1 |
| **Building 372A** | | | | |
| 372A-06042003-315-101 | 1 | 101 | Top of Open/Closed sign | < 0.1 |
| 372A-06042003-315-102 | 2 | 101 | Top of fluorescent light fixture | < 0.1 |
| 372A-06042003-315-103 | 3 | 101 | On concrete floor at east wall | < 0.1 |
| 372A-06042003-315-104 | 4 | 101 | On concrete floor at east wall by entry gate | < 0.1 |
| 372A-06042003-315-105 | 5 | 101 | On concrete floor under badge swipe station | < 0.1 |

# CHEMICAL SAMPLE MAP

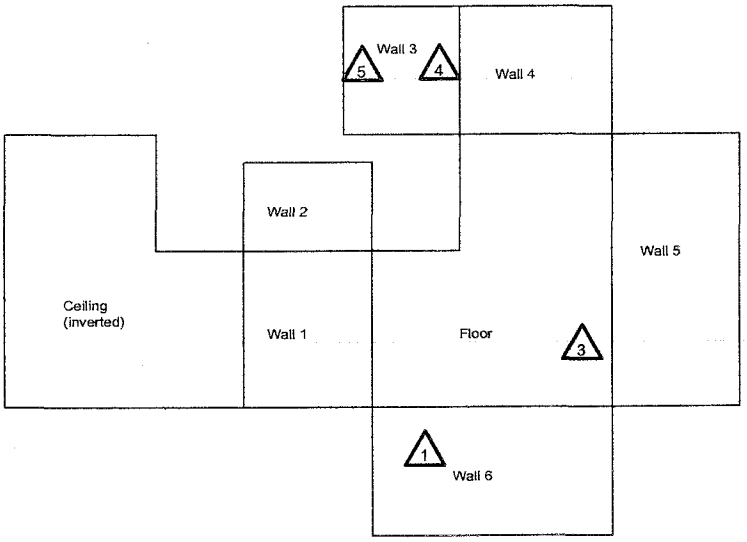
## Building 372 Interior
## Beryllium



Rest Room




Main Room




**SURVEY MAP LEGEND**

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit



N

0 FEET 15

0 METERS 5

1 inch = 12 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2MHILL Communications Group

KAISER HILL

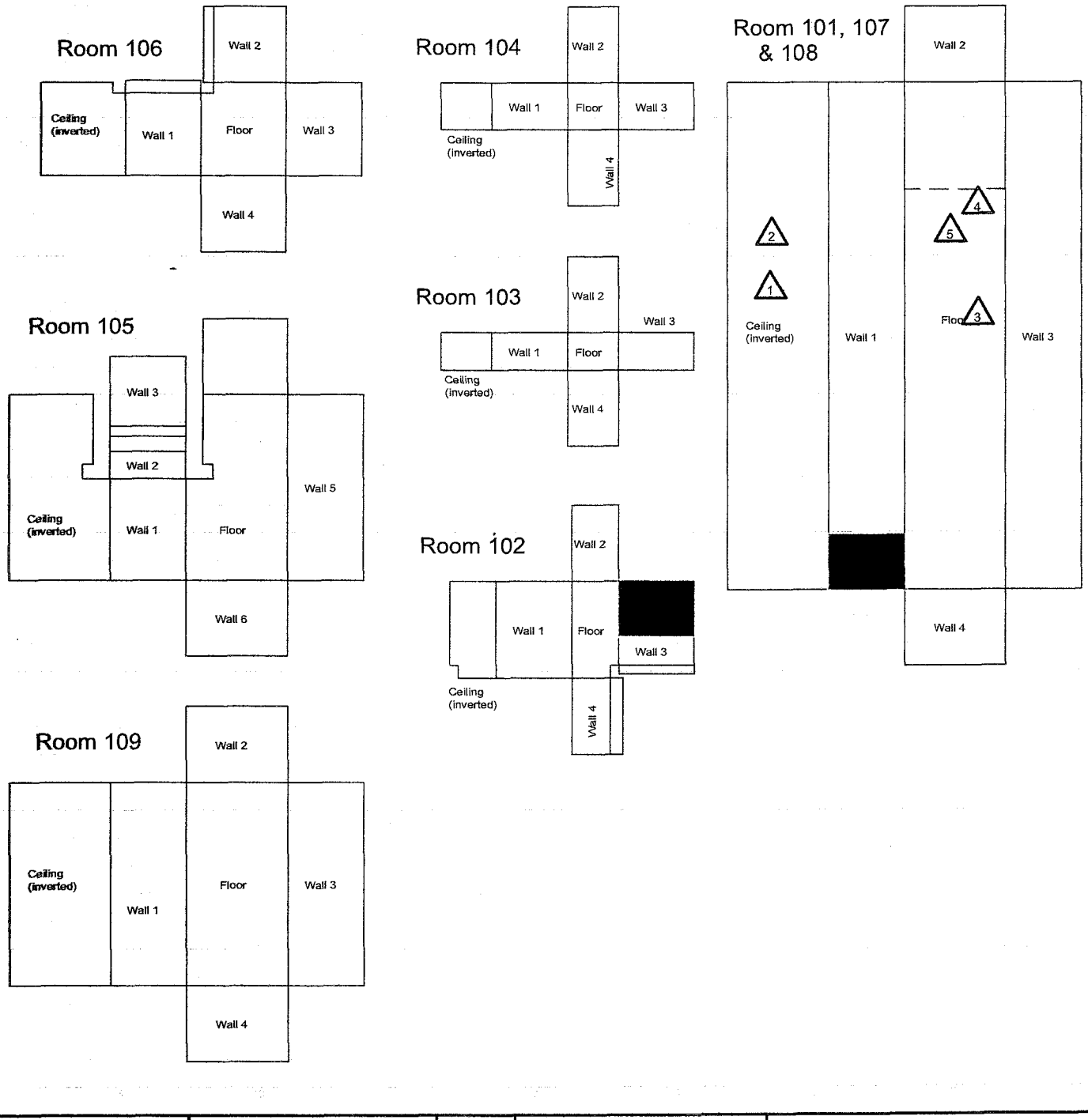
MAP ID: 02-0589/B372-BE

July 14, 2003

# CHEMICAL SAMPLE MAP

## Building 372A Interior
## Beryllium






**SURVEY MAP LEGEND**

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit



N

0 FEET 25

0 METERS 8

1 inch = 18 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2MHILL Communications Group

KAISER HILL

MAP ID: 02-0589/B372A-BE

June 03, 2003

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# ATTACHMENT E

# Data Quality Assessment (DQA) Detail

# DATA QUALITY ASSESSMENT (DQA)

## VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically asbestos and beryllium.)

DQA criteria and results are provided in tabular format for each suite of surveys or chemical analyses performed; the radiological survey assessment is provided in Table E-1, asbestos in E-2 and beryllium in E-3. A data completeness summary for all results is given in Table E-4.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of Regulator approval. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Buildings 372 and 372A based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic $DCGL_w$ (100 dpm/100cm$^2$) and the Uranium $DCGL_w$ (5,000 dpm/100cm$^2$) unrestricted release limits.

Consistent with EPA's G-4 DQO process, the radiological survey design (for those survey units performed per PDS requirements) was optimized by checking actual measurement results (acquired during pre-demolition surveys) against model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

## SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable uncertainties.



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Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable unrestricted release levels. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits ensuring data accuracy. All results meet the PDS unrestricted release criteria.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facility. On this basis, Buildings 372 and 372A meet the unrestricted release criteria with the confidences stated herein.



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## Table E-1 V&V of Radiological Results - Buildings 372 and 372A

| V&V CRITERIA, RADIOLGICAL SURVEYS | | K-H RSP 16.00 Series MARSSIM (NUREG-1575) | | |
|---|---|---|---|---|
| QUALITY REQUIREMENTS | | | | |
| | **Parameters** | **Measure** | **frequency** | **COMMENTS** |
| **ACCURACY** | initial calibrations | 90%<x<110% | ≥1 | Multi-point calibration through the measurement range encountered in the field; programmatic records. |
| | daily source checks | 80%<x<120% | ≥1/day | Performed daily/within range. |
| | local area background: Field | typically < 10 dpm | ≥ 1/day | All local area backgrounds were within expected ranges (i.e., no elevated anomalies.) |
| **PRECISION** | field duplicate measurements for TSA | ≥ 5% of real survey points | ≥ 10% of reals | N/A |
| **REPRESENTATIVENESS** | MARSSIM methodology: Survey Units 372-A-005, 372A-A-006 (interior) and EXT-B-001 (exterior). | statistical and biased | NA | Random w/ statistical confidence. |
| | Survey Maps | NA | NA | Random and biased measurement locations controlled/mapped to ±1m. |
| | Controlling Documents (Characterization Pkg; RSPs) | Qualitative | NA | Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats. |
| **COMPARABILITY** | units of measure | dpm/100cm$^2$ | NA | Use of standardized engineering units in the reporting of measurement results. |
| **COMPLETENESS** | Plan vs. Actual surveys<br>usable results vs. unusable | >95%<br>>95% | NA | See Table E-4 for details. |
| **SENSITIVITY** | detection limits | TSA: ≤50 dpm/100cm$^2$<br>RA: ≤10 dpm/100cm$^2$ | all measures | MDAs ≤ 50% DCGL$_w$ per MARSSIM guidelines. |

## Table E-2 V&V of Asbestos Results - Buildings 372 and 372A

| V&V CRITERIA, CHEMICAL ANALYSES | | DATA PACKAGE | | |
|---|---|---|---|---|
| ASBESTOS | METHOD: EPA 600/R-93/116 | LAB ----> | Reservoirs Environmental, Inc | |
| QUALITY REQUIREMENT | | RIN ----> | RIN03Z1815 | |
| | | Measure | Frequency | COMMENTS |
| ACCURACY | Calibrations: Initial/continuing | below detectable amounts | ≥1 | Semi-quantitative, per (microscopic) visual estimation. |
| PRECISION | Actual Number Sampled<br>LCSD<br>Lab duplicates | all below detectable amounts | ≥ 3 samples | Semi-quantitative, per (microscopic) visual estimation. |
| REPRESENTATIVENESS | COC | Qualitative | NA | Chain-of-Custody intact: completed paperwork, containers w/ custody seals. |
| | Hold times/preservation | Qualitative | NA | N/A |
| | Controlling Documents (Plans, Procedures, maps, etc.) | Qualitative | NA | See original Chemical Characterization Package (planning document); for field/sampling procedures (located in project file;) thorough documentation of the planning, sampling/analysis process, and data reduction into formats. |
| COMPARABILITY | Measurement Units | % by bulk volume | NA | Use of standardized engineering units in the reporting of measurement results. |
| COMPLETENESS | Plan vs. Actual samples<br>Usable results vs. unusable | Qualitative | NA | Final number of samples at Certified Inspector's discretion, See Table E-4. |
| SENSITIVITY | Detection limits | <1% by volume | all measures | N/A |

## Table E-3 V&V of Beryllium Results - Buildings 372 and 372A

| V&V CRITERIA, CHEMICAL ANALYSES | | DATA PACKAGE | | |
|---|---|---|---|---|
| BERYLLIUM | Prep: NMAM 7300<br>METHOD: OSHA ID-125G | LAB ----> | Reservoirs Environmental Inc. | |
| QUALITY REQUIREMENTS | | RIN ----> | RIN03Z1814 | |
| | | Measure | frequency | COMMENTS |
| ACCURACY | Calibrations<br>Initial | linear calibration | ≥1 | No qualifications significant enough to change project decisions, i.e., classification of Type 1 facilities confirmed. All results were below associated action levels. |
| | Continuing | 80%<%R<120% | ≥1 | |
| | LCS/MS | 80%<%R<120% | ≥1 | |
| | **Blanks** - lab & field | <MDL | ≥1 | |
| | interference check std (ICP) | NA | NA | |
| PRECISION | LCSD | 80%<%R<120%<br>(RPD<20%) | ≥1 | |
| | field duplicate | all results < RL | ≥1 | |
| REPRESENTATIVENESS | COC | Qualitative | NA | |
| | hold times/preservation | Qualitative | NA | |
| | Controlling Documents (Plans, Procedures, maps, etc.) | Qualitative | NA | |
| COMPARABILITY | measurement units | ug/100cm$^2$ | NA | |
| COMPLETENESS | Plan vs. Actual samples<br>usable results vs. unusable | >95%<br>>95% | NA | |
| SENSITIVITY | detection limits | MDL of<br>0.012 ug/100cm$^2$ | all measures | |

**Table E-4 Data Completeness Summary - Buildings 372 and 372A**

| ANALYTE | Building/Area/ Unit | Sample Number Planned (Real & QC)[A] | Sample Number Taken (Real & QC ) | Project Decisions (Conclusions) & Uncertainty | Comments (RIN, Analytical Method, Qualifications, etc.) |
|---|---|---|---|---|---|
| Asbestos | Building 372 | 6 biased (interior) | 2 biased (interior) | No ACM present, all results < 1% by volume | 40 CFR763.86; CCR 1001-10; EPA 600/R-93/116<br><br>RIN03Z1815 |
| Asbestos | Building 372A | 9 biased (interior) | 1 biased (interior) | No ACM present, all results < 1% by volume | 40 CFR763.86; CCR 1001-10; EPA 600/R-93/116<br><br>RIN03Z1815 |
| Beryllium | Building 372 | 5 biased (interior) | 5 biased (interior) | No contamination found, all results are less than associated action levels | OSHA ID-125G – RIN03Z1814<br><br>No results above action level (0.2ug/100cm$^2$) or investigative level (0.1 ug/100cm$^2$). |
| Beryllium | Building 372A | 5 biased (interior) | 5 biased (interior) | No contamination found, all results are less than associated action levels | OSHA ID-125G – RIN03Z1814<br><br>No results above action level (0.2ug/100cm$^2$) or investigative level (0.1 ug/100cm$^2$). |
| Radiological | Survey Area 3 Survey Unit: 372-A-005 Building 372 (interior) | 20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased)<br><br>2 QC TSA<br><br>5% scan | 20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased)<br><br>2 QC TSA<br><br>5% scan | No contamination at any location; all values below PDS unrestricted release levels | Transuranic and/or Uranium DCGLs as applicable. |

**Table E-4 Data Completeness Summary - Buildings 372 and 372A**

| ANALYTE | Building/Area/ Unit | Sample Number Planned (Real & QC)[A] | Sample Number Taken (Real & QC ) | Project Decisions (Conclusions) & Uncertainty | Comments (RIN, Analytical Method, Qualifications, etc.) |
|---|---|---|---|---|---|
| Radiological | Survey Area 3<br>Survey Unit:<br>372A-A-006<br>Building 372A<br>(interior) | 25 α TSA<br>(15 random and 10 biased)<br>and<br>25 α Smears<br>(15 random and 10 biased)<br><br>2 QC TSA<br><br>5% scan | 25 α TSA<br>(15 random and 10 biased)<br>and<br>25 α Smears<br>(15 random and 10 biased)<br><br>2 QC TSA<br><br>5% scan | No contamination at any location; all values below PDS unrestricted release levels | Transuranic and/or Uranium DCGLs as applicable. |

[A] Number of asbestos samples required is an estimate only, final number of samples is at the discretion of the IH.